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DIRECT TESTIMONY
OF
PROGRESS ENERGY CAROLINAS, INC. WITNESS
STEVE WILSON

SCPSC DOCKET NO. 2004-100 -E



1 **Q. PLEASE STATE YOUR NAME, YOUR BUSINESS ADDRESS AND THE**
2 **POSITION YOU HOLD WITH PROGRESS ENERGY CAROLINAS, INC.**

3 A. My name is Steve Wilson and my business address is 412 South Wilmington Street,
4 Raleigh, North Carolina 27602. I am a Project Manager in the Transmission Department
5 of Progress Energy Carolinas, Inc. (PEC).

6 **Q. PLEASE STATE BRIEFLY YOUR EDUCATIONAL AND PROFESSIONAL**
7 **BACKGROUND.**

8 A. I am a graduate of North Carolina State University with a Bachelor of Science Degree in
9 Civil Engineering. I am a registered professional engineer in North and South Carolina. I
10 started working for PEC in 1977 and have held various positions in the Transmission
11 Department with responsibilities for siting, engineering, developing standards and
12 managing the construction of transmission lines.

13 **Q. WHAT ARE YOUR CURRENT RESPONSIBILITIES WITH PEC?**

14 A. As a Project Manager in the Transmission Department, I manage major PEC transmission
15 line projects from scope definition and line siting through construction. I have worked in
16 the Transmission Department at PEC for over 26 years.

17 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

18 A. The purpose of my testimony is to explain the route selection process for the proposed
19 Florence-Marion 230kV and the Marion-Whiteville 230-kV transmission lines. I will

1 explain how the preferred routes were selected and how public input was incorporated
2 into the route selection process. I will also provide the estimated cost and in-service date
3 information.

4 **Q. PLEASE DESCRIBE THE ROUTING / SELECTION PROCESS FOR BOTH OF**
5 **THESE PROPOSED LINES.**

6 **A.** Exhibit 1 to my testimony, which is the "Application for Certificate of Environmental
7 Compatibility and Public Convenience and Necessity", which I am incorporating by
8 reference contains Exhibit B entitled "Routing Study and Environmental Report" for the
9 Florence-Marion 230-kV Transmission Line Project, dated March 2004, prepared by
10 Burns & McDonnell Engineering Company, Inc. and Exhibit D entitled "Routing Study
11 and Environmental Report" for the Marion-Whiteville 230-kV Transmission Line Project,
12 dated March 2004 also prepared by Burns & McDonnell Engineering Company, Inc.
13 Both of these environmental reports contain a summary of PEC's route selection process,
14 public involvement activities, and the potential environmental impacts of the selected
15 route and alternative routes studied for each project, as well as mitigation measures and
16 resulting overall impact of the proposed transmission lines. Appendices to the reports
17 include copies of agency correspondence, public involvement documentation,
18 photographs of typical structures and supporting route analysis information. Exhibit 1
19 was prepared under my supervision and control.

20 PEC retained Burns & McDonnell to assist in the route selection, public
21 involvement and documentation process for both of these transmission projects. First,
22 project study areas were established based on each project's needs and a preliminary

1 review of possible constraints (i.e. existing homes, businesses, wetlands, etc.) and
2 opportunities (i.e. existing rights-of-way) in the each of the areas. The limits of the study
3 areas allowed the identification of a reasonable set of feasible routes around the
4 developed parts of Florence, Marion and Nichols, as well as options maximizing the use
5 of existing gas pipeline and electric transmission line rights-of-way.

6 After establishing the study areas, potential alternative routes were identified for
7 each project. The objective was to identify routes connecting the Florence Substation to
8 the Marion Substation and the existing lines between the Nichols Substation and the
9 Brunswick Electric Membership Corporation's (EMC) Peacock point of delivery (POD)
10 while avoiding or minimizing impacts to both human and natural resources. Local, state
11 and federal government agencies were contacted to obtain information relevant to the
12 routing process. Homes and other features located near each potential route were
13 identified during a field reconnaissance effort during which all potential routes were
14 assessed. If a serious problem, such as a new home or business, was identified along a
15 route, adjustments were made to the route to minimize the potential impacts or the route
16 was removed from consideration.

17 Following the identification of potential alternative routes, public input was
18 solicited via public information meetings held by PEC in February 2003 in each of the
19 study areas and via information available on the PEC project website
20 (<http://www.cpl.com/about/transmission/index.html>). The public participation
21 program provided the public with an explanation of the need for each of the projects and
22 the opportunity to comment on the decision-making criteria to be used to select the

1 preferred routes in each. It also provided the public with a forum to ask questions and
2 voice their opinions regarding the proposed routes. Workshop participants were asked to
3 communicate their concerns and opinions via a questionnaire distributed at the workshops
4 and on the website. This input was used to identify primary issues of concern to the
5 public in the study areas.

6 Using the information collected from the public, field reconnaissance, agency
7 contacts, and review of recent aerial photography and U.S. Geological Survey (USGS)
8 quadrangle maps, the study team quantified the social and environmental resources that
9 would be impacted by each possible route for both projects. The quantitative data, public
10 input, and engineering criteria were used to evaluate the alternatives by calculating scores
11 for each route based on the impacts for that route relative to the other routes. Criteria
12 used to evaluate the routes included: proximity to residences, businesses, and public
13 facilities; total length and number of heavy angles; agricultural land, woodland, wetlands,
14 and streams crossed; and visibility. A preferred route for each of the proposed
15 transmission lines was identified, which was considered to have the least overall impacts
16 of the alternatives studied.

17 Project costs were not directly considered as criteria in the initial evaluation of the
18 alternate routes. Rather, the route analysis includes criteria that are generally considered
19 to be representative indices of project cost, such as total length and heavy angles. The
20 cost to build a particular route is typically a result of the total length and configuration of
21 the route. Routes that utilize existing rights-of-way are shorter in length, and/or have
22 fewer angles tend to perform more favorably in the ranking process. These routes also

1 typically cost less to construct if all other factors are equal. However, other factors not
2 necessarily represented by length and angles can drive up the cost of line construction as
3 well. These factors include right-of-way acquisition, legal cost and final settlements, and
4 differences in right-of-way clearing, material and construction costs resulting from the
5 final line design. Other unforeseen costs may also develop along any of the routes as the
6 project progresses. Following the initial evaluation of alternatives, detailed cost estimates
7 were prepared and used to evaluate the top-scoring routes, leading to the selection of the
8 preferred route.

9 Activities leading to the determination of the final route alternatives are described
10 in more detail in Chapter 4 of each of the respective Routing Study and Environmental
11 Reports, Exhibit B and Exhibit D to PEC's siting application.

12 **Q. WOULD YOU ELABORATE ON HOW THE ROUTE SELECTION PROCESS**
13 **WORKS?**

14 A. PEC's selection process typically takes into consideration the following criteria in
15 reviewing possible routes for all potential transmission lines: distance from residences,
16 businesses, public facilities, known cultural resources, airports, and designated wildlife
17 areas or protected habitat; total length; acres or length of wetlands, forestland, and
18 agricultural land crossed; number of perennial streams crossed; visibility; angles; and
19 length parallel to existing gas, transmission, pipeline and rail corridors. All of these
20 factors may not necessarily apply to every project, depending upon the issues present in
21 the various study areas. Though not all of these factors may be used in the route scoring
22 for every project, most of them are used to develop and evaluate the alternative routes.

1 The route scores reduce the level of subjectivity in the route selection process by
2 providing an initial index that helps the project team screen out poor routes and identify
3 the top routes. We then use the scores and route data in conjunction with other collected
4 information not included in the scoring matrix to evaluate the top routes and determine
5 the preferred route.

6 **Q. PLEASE DESCRIBE THE NEW 230-kV TRANSMISSION LINE PEC**
7 **PROPOSES TO CONSTRUCT FROM ITS FLORENCE 230-kV SUBSTATION,**
8 **FLORENCE, SOUTH CAROLINA TO ITS MARION 230-kV SUBSTATION,**
9 **NORTH OF MARION, SOUTH CAROLINA.**

10 A. PEC is proposing to design and build a new 230 kV transmission line using weathered
11 steel, direct-buried single pole structures for its entire length. The structures will be
12 designed to support three phases of single 1590 ACSR conductor with one 7#7
13 Alumoweld overhead ground wire. The pole height would be approximately 100 feet
14 above ground, on average, depending on the design and terrain. Ground clearance will
15 meet or exceed the requirements of the National Electric Safety Code for a 230-kV
16 transmission line. The structures will be spaced approximately 500 to 700 feet apart.

17 The project will require various right-of-way widths. Where the line does not
18 parallel any existing infrastructure (i.e., road, transmission line or pipeline), the 230-kV
19 transmission line will require a new 100-foot-wide electric utility easement. The new line
20 will be located in the center of the easement with 50 feet on each side of the easement
21 centerline. Where the proposed line parallels existing 230-kV transmission line corridors,
22 only an additional 70 feet of right-of-way will be needed because the new right-of-way

1 could share approximately 30 feet of the existing transmission line's cleared corridor.
2 The new line would then be located off-center in the new easement. Routes parallel to
3 PEC's existing 115-kV transmission lines will require only 85 feet of new right-of-way,
4 sharing approximately 15 feet of the existing corridor with the existing transmission line.
5 Where the new line parallels Santee-Cooper transmission lines, the new 230-kV
6 transmission line would be built at least 20 feet from the existing right-of-way easement.
7 The amount of right-of-way that can be shared depends on the width of the other utility's
8 right-of-way and will be determined through negotiations with the utilities. Paralleling
9 natural gas pipeline rights-of-way will reduce the required right-of-way width to 70 feet.
10 Approximately 30 feet of the existing gas pipeline corridor can be shared with the new
11 transmission lines.

12 **Q: PLEASE DESCRIBE THE STUDY AREA AND ALTERNATIVE ROUTES**
13 **CONSIDERED FOR THE FLORENCE-MARION PROJECT.**

14 **A:** The study area falls primarily within northeastern Florence County, northwestern Marion
15 County, and southwestern Dillon County. The northern boundary of the study area
16 follows Interstate 95 and an existing Progress Energy transmission line to State Highway
17 917. The western boundary of the study area also follows an existing transmission line
18 south of Latta and east of U.S. Highway 501 to the Marion Substation. The southern
19 boundary of the study area follows an existing transmission line south of U.S. Highway
20 76 perpendicular to the Great Pee Dee River, then extends north of U.S. Highway 76 east
21 of the Florence Regional Airport. The eastern boundary of the study area runs from the
22 Florence Substation to Interstate 95.

1 The alternate routes consist of individual segments that may be combined in
2 different arrangements to form a continuous path from the Florence Substation to the
3 Marion Substation. The routes and their components are depicted graphically on USGS
4 quadrangles in Figure 4-1 of Exhibit B. The study area consists of 60 individual
5 segments that can be combined to form 177 possible routes between the Florence
6 Substation and the Marion Substation. A map showing all of the alternatives can be
7 found in Figure 4-1 in the Routing Study and Environmental Report, Florence Substation-
8 Marion Substation – Exhibit B.

9 **Q. PLEASE DESCRIBE THE SELECTED ROUTE FOR THE NEW FLORENCE-**
10 **MARION LINE.**

11 **A.** Exhibit B to the Application is the Routing Study and Environmental Report – Florence-
12 Marion filed on April 8, 2004 which complies with all the requirements of S.C. Code
13 Ann. §§ 58-33-10 et. seq. This exhibit contains a USGS quadrangle map of the project
14 area (Figure 5-1) showing the location of the proposed transmission line. Shown on this
15 exhibit, the proposed new transmission line will originate at the Florence Substation in
16 northern Florence at 1200 North Douglas Street. The terminus of the new line is the
17 Marion Substation, located north of Marion near U.S. Highway 501 Bypass.

18 The preferred route exits the Florence Substation to the north, parallel to existing
19 Progress Energy transmission lines and a gas pipeline. Approximately 1.1 miles north of
20 the substation, the preferred route turns northeast, crossing to the east side of West Leggs
21 Circle near the entrance to the Pee Dee Environmental landfill. The preferred route
22 follows the east side of West Leggs Circle to the north, crosses West Leggs Circle, and

1 then continues north, returning to the existing lines. The preferred route turns east,
2 following the existing lines across McIver Road and TV Road (State Route 26). After
3 turning northeast, parallel to the existing lines between Split Rail Drive and East Black
4 Creek Drive, the preferred route turns east, crossing East Black Creek toward Sand Pit
5 Road. The route follows Sand Pit Road to the east, and then parallels a Santee Cooper
6 line tap to the north, back to the existing Progress Energy transmission line corridor. The
7 preferred route parallels the Progress Energy line and Santee Cooper line tap to the
8 northeast, crossing State Highway 327 and then follows the southern boundary of the Pee
9 Dee Regional Commerce Center. At the northeast corner of the Commerce Center, the
10 preferred route continues to parallel the existing Progress Energy transmission line to the
11 northeast, crossing the Great Pee Dee River into Dillon County. Approximately 1.5 miles
12 northeast of the Florence County – Dillon County boundary, the preferred route turns
13 east, continuing to parallel the existing line for 5.3 miles. The preferred route then angles
14 southeast, away from the existing Progress Energy line, and crosses Gum Swamp Road,
15 heading toward a non-Progress Energy transmission line. The preferred route meets and
16 then continues to follow this line to the southeast for approximately 2.9 miles, crossing
17 U.S. Highway 301 shortly after crossing into Marion County. The preferred route
18 continues to follow this line southeast through Marion County for another 6.2 miles. Just
19 west of the U.S. Highway 501 Bypass, the preferred route turns south away from the
20 existing line, then southeast to meet another Progress Energy transmission line. The
21 preferred route parallels this line east, crossing the U.S. Highway 501 Bypass before
22 entering the Marion Substation from the west.

1 **Q. WHY IS THIS THE MOST APPROPRIATE LOCATION FOR THE FLORENCE-**
2 **MARION LINE?**

3 A. The preferred route was selected because of all the alternatives identified to meet the
4 needs, it will have the fewest environmental impacts.

5 Impacts from construction of the Florence-Marion preferred route are minimized
6 because nearly 86 percent of the route follows existing pipeline and transmission line
7 rights-of-way, reducing the amount of right-of-way to be acquired and minimizing
8 impacts to agricultural land, woodland and wetlands. Although the preferred route is
9 longer than over half of the other routing options, the potential impacts are mitigated by
10 following existing transmission lines between the Florence and Marion Substations. The
11 preferred route impacts few residences and businesses, and no public facilities. No
12 homes are within 100 feet of the route and only three homes are located within 200 feet of
13 the preferred route. Two businesses are within 200 feet of the preferred route. No public
14 facilities are located within 200 feet of the preferred route. The preferred route also
15 crosses some of the least agricultural land of all the routes, approximately 19 percent, or
16 48 acres, which was a factor considered significant to the public (in addition to the
17 proximity to homes). The preferred route also crosses approximately 207 acres of
18 woodland and 143 acres of wetlands. Though the selected route does not have the fewest
19 impacts for every measured factor, when all factors were considered, the route has the
20 fewest cumulative impacts.

21 **Q: IF THE NEW FLORENCE-MARION TRANSMISSION LINE IS APPROVED,**
22 **WHAT ARE THE NEXT STEPS IN THIS PROCESS?**

1 A. Once Commission approval is attained from the South Carolina Public Service
2 Commission, PEC will notify the landowners affected by the new transmission line as
3 well as those landowners who attended the public workshops of the selection and
4 approval of the route. PEC will then begin acquiring easements from landowners and
5 will work with them to identify adjustments to each of the routes that will minimize
6 impacts on each landowner's property to the extent possible. The lines will then be
7 engineered to identify structure locations and heights along the centerline, a clearing and
8 erosion control plan will be prepared, and all necessary permits will be obtained.

9 The clearing of the right-of-way will begin in the summer of 2005, while
10 construction is scheduled to begin in the spring of 2006. The line is scheduled to be in-
11 service by the summer of 2007.

12 **Q. WHAT IS THE ESTIMATED COST FOR THE PROPOSED FLORENCE-**
13 **MARION 230-kV TRANSMISSION LINE?**

14 A. The total cost of construction for the Florence-Marion line is approximately \$20,000,000.
15 This includes company labor, contract labor, right-of-way acquisition, materials,
16 clearing, construction, project administration, overhead and taxes. Based on information
17 available at this time, the accuracy of the estimate is expected to be within \pm 15 percent.
18 Actual cost may vary from the estimates depending on final appraised land values,
19 condemnation costs, final engineering plans and environmental permitting costs.

20 The cost estimates for the top-scoring alternative routes [contained in Table 4-10
21 on page 4-33 of Exhibit B, the routing study and environmental report for this project]
22 indicate the selected route is the least expensive route. Although the preferred route is

1 longer than the other top routes, it will impact nearly the least amount of new right-of-
2 way because it would share right-of-way with an existing transmission line for
3 approximately 86 percent of its length. The cost difference among all of the top routes
4 was very small (six percent or less) when compared to the total project cost.

5 **Q. PLEASE DESCRIBE THE SECOND NEW 230-kV TRANSMISSION LINE PEC**
6 **PROPOSES TO CONSTRUCT FROM ITS NICHOLS SUBSTATION, NEAR**
7 **NICHOLS, SOUTH CAROLINA TO THE BRUNSWICK EMC'S PEACOCK**
8 **POD, NEAR CHADBOURN, NORTH CAROLINA.**

9 A. PEC is proposing to design and build a new 230 kV transmission line using weathered
10 steel, direct-buried single pole structures for its entire length. These structures will be
11 designed to support three phases of single 1590 ACSR conductor with one 7#7
12 Alumoweld overhead ground wire. The pole height would be approximately 100 feet
13 above ground, on average, depending on the design and terrain. Ground clearance will
14 meet or exceed the requirements of the National Electric Safety Code for a 230-kV
15 transmission line. The structures will be space approximately 500 to 700 feet apart.

16 The project will require various right-of-way widths. Where the line does not
17 parallel any existing infrastructure (i.e., road, transmission line or pipeline), the 230-kV
18 transmission line will require a new 100-foot-wide electric utility easement. The new line
19 will be located in the center of the easement with 50 feet on each side of the easement
20 centerline. Routes parallel to PEC's existing 115-kV transmission lines will require
21 only 85 feet of new right-of-way, sharing approximately 15 feet of the existing corridor
22 with the existing transmission line.

**Q: PLEASE DESCRIBE THE STUDY AREA AND ALTERNATIVE ROUTES
CONSIDERED FOR THE MARION-WHITEVILLE PROJECT.**

A. The study area for the Marion-Whiteville line is located in northeastern South Carolina and southeastern North Carolina. The study area includes portions of Robeson and Columbus counties in North Carolina and portions of Marion, Horry and Dillon counties in South Carolina. The western boundary of the study area begins in Dillon County, South Carolina approximately four miles north of Nichols and generally runs south along State Highway 9, through Nichols, and crosses the Lumber River. The southern boundary begins in Marion County, South Carolina on the southern side of the Lumber River and runs east through Columbus County, North Carolina to NC State Highway 1317. The eastern boundary then turns northeasterly near NC State Highway 1317, to approximately 2,500 feet east of Peacock Road, just south of NC State Highway 1004. It then continues due north, ending just north of U.S. Highway 74. The northern boundary runs from U.S. Highway 74, generally west through Columbus County, North Carolina. It turns southwest just northeast of Fair Bluff, North Carolina, crosses the Lumber River into Robeson County, North Carolina, continues into Dillon County, South Carolina and ends approximately four miles north of Nichols near SC State Highway 9.

The alternative routes consist of individual segments that may be combined in different arrangements to form a continuous path from the existing transmission lines constructed between the Nichols Substation and the Brunswick EMC's Peacock POD. The routes and their components are shown on USGS quadrangles in Figure 4-1 of Exhibit D. The study area consists of a total of 54 individual segments that can be

combined to form 107 possible routes between the Nichols Substation and the Peacock POD. A map showing all of the alternatives can be found in Figure 4-1 in the Routing Study and Environmental Report, Marion Substation - Whiteville Substation - Exhibit D.

Q. PLEASE DESCRIBE THE SELECTED ROUTE FOR THE MARION-WHITEVILLE LINE.

A. Exhibit D to the Application is the Routing Study and Environmental Report – Marion-Whiteville filed on April 8, 2004 which compiles with all the requirements of S. C. Code Ann. §§ 58-33-10 et. seq. This exhibit contains a USGS quadrangle map of the project area (Figure 5-1) showing the location of the proposed transmission line. Shown on this exhibit, the proposed new transmission line will originate 1,000 feet east of the Nichols Substation near State Highway 9 north of Nichols, South Carolina. The terminus of the new line is an existing 230-kV line segment approximately 1,200 feet west of Brunswick EMC's Peacock POD, located southeast of Chadbourn, North Carolina.

The preferred route originates at the existing 230-kV line segment east of the Nichols Substation, adjacent to the existing Progress Energy Marion-Whiteville 115-kV line, and heads southeast toward the Lumber River. Still adjacent to the existing line, the route crosses the state line into North Carolina (a total of 6.7 miles within South Carolina). Near NC State Highway 1356, the preferred route deviates from the existing line and runs southeast for approximately 7,000 feet to a point west of NC State Highway 904 where it turns east and continues for approximately eight miles. Approximately 1,000 feet east of NC State Highway 1300, the route turns northeast, crossing NC State Highways 1004, then 1317 and 410. The route continues northeast to a point

1 approximately 1,200 feet west of Peacock Road and 2,000 feet south of the existing 115-
2 kV line, then runs north to the existing 115-kV line, turning east to connect to the existing
3 230-kV line segment near the Peacock POD.

4 **Q. WHY IS THIS THE MOST APPROPRIATE LOCATION FOR THE NEW**
5 **MARION-WHITEVILLE LINE?**

6 A. The preferred route was selected because it will have only minimal to moderate impacts
7 on the human and natural environment.

8 The Marion-Whiteville preferred route will have relatively minor overall impacts.
9 There will be no homes located within 200 feet of the preferred route. Three businesses
10 are within 200 feet of the route, but all are already adjacent to the existing 115-kV line.
11 Approximately 91 acres of agricultural land, 149 acres of forested land and 68 acres of
12 wetlands will be within the right-of-way of the preferred route. In addition,
13 approximately 38 percent of the preferred route will be parallel to an existing
14 transmission line, thereby minimizing impacts along approximately one third of the route.
15 The visibility impact of the preferred route is one of the lowest of all the routes analyzed
16 for this project. The preferred route is one of the best scoring routes regarding the
17 amount of cleared land crossed; i.e. it crosses less cleared land than most other routes,
18 which is of importance to the public. The preferred route also impacts relatively few
19 wetlands compared to the other alternate routes.

20 **Q: IF THE NEW MARION-WHITEVILLE TRANSMISSION LINE IS APPROVED,**
21 **WHAT ARE THE NEXT STEPS IN THIS PROCESS?**

22 A: Once Commission approval is attained from both the South Carolina and North Carolina

1 commissions, PEC will notify the landowners affected by the new transmission lines as
2 well as those landowners who attended the public workshops of the selection and
3 approval of the route. PEC will then begin acquiring easements from landowners and
4 will work with them to identify adjustments to each of the routes that will minimize
5 impacts on each landowner's property to the extent possible. The lines will then be
6 engineered to identify structure locations and heights along the centerline, a clearing and
7 erosion control plan will be prepared, and all necessary permits will be obtained.

8 The clearing of the right-of-way will begin in December of 2005, while
9 construction is scheduled to begin in June of 2006. The line is scheduled to be in-service
10 by the summer of 2007.

11 **Q. WHAT IS THE ESTIMATED COST FOR THE PROPOSED MARION-**
12 **WHITEVILLE 230-kV TRANSMISSION LINE?**

13 A. The total cost of construction for the Marion-Whiteville line is approximately
14 \$17,200,000. This includes company labor, contract labor, right-of-way acquisition,
15 materials, clearing, construction, project administration, overhead and taxes. Based on
16 information available at this time, the accuracy of the estimate is expected to be within \pm
17 15 percent. Actual cost may vary from the estimates depending on final appraised land
18 values, condemnation costs, final engineering plans and environmental permitting costs.

19 The cost estimates for the top-scoring alternative routes [contained in Table 4-10
20 on page 4-26 of Exhibit D, the routing study and environmental report for this project]
21 indicate the selected route (F12) is the third least expensive route, a difference of only
22 about one percent compared to the other two routes (F17 and E5). Route F17 is shorter

1 by about one-half mile, but would require more acres of right-of-way, would parallel less
2 miles of existing transmission corridor, impact more cleared/agricultural land, have a
3 greater visibility impact and would impact one more public facility (a cemetery) than will
4 the preferred route. Route E5 had approximately 1,850 feet less length and 15 less acres
5 to be cleared than the preferred route. However, Route E5 would have a much greater
6 impact to residences and businesses, impacting five residences (including one that would
7 be within 100 feet of the route) and four businesses, compared to the preferred route,
8 which will impact no residences and only three businesses. Additionally, Route E5
9 would have a greater visibility impact and agricultural impact than the preferred route.
10 The cost difference among all of the top routes was very small (seven percent or less)
11 when compared to the total project cost.

12 **Q. PLEASE DESCRIBE HOW PEC DETERMINED THE APPROPRIATE**
13 **LOCATION FOR EACH OF THESE TRANSMISSION PROJECTS?**

14 A. I discussed how we identified alternative routes earlier in my testimony. Once identified,
15 the alternative routes were evaluated for their overall impact to human resources and the
16 natural environment. Engineering issues were also considered, but to a lesser degree.
17 Scores were calculated for each route based on the potential impacts of that route relative
18 to the potential impacts of the other routes considered. Public input from the workshop
19 questionnaires was used to weight the various impacts of the routes according to the
20 issues of greatest importance to the public. The preferred route in each project received
21 the lowest (i.e., best) overall weighted score, of all the proposed routes, indicating that it
22 would have the least overall impact on the human and natural environment. Careful

review of the data and further field review confirmed these findings.

Q. WILL THE PROPOSED TRANSMISSION PROJECTS CONFORM TO ALL APPLICABLE STATE AND LOCAL LAWS AND REGULATIONS?

A. Yes. All clearing, construction, and maintenance will be conducted in accordance with Best Management Practices published by the South Carolina Forestry Commission and the North Carolina Erosion and Sediment Control Planning and Design Manual. If necessary, PEC will obtain Section 404 wetland permits from the U.S. Army Corps of Engineers. Prior to construction, formal consultation will begin with each of the State Historic Preservation Offices to avoid impacts to culturally significant sites protected under Section 106 of the National Historic Preservation Act. Likewise, PEC will coordinate construction with U.S. Fish and Wildlife Service to ensure no federally endangered or threatened species are impacted by the project.

Q. ARE THESE THE BEST ROUTES PEC COULD HAVE SELECTED FOR THESE TWO PROPOSED TRANSMISSION LINES?

A. The preferred route for each project is the best route PEC could have selected because in both cases each had the least overall impacts based on the information used to evaluate the routes and the route selection process. The selections were made objectively using the selection process to compare the overall impacts to the natural and human environment for numerous route options.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

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